

XVIIIth GENERAL ASSEMBLY



ASTROKOSMOS



August 17
Number 1



Patras: Greece 1982

Le 17 Août
Numéro 1

Editorial Office: T-block

Editor: ARCHIE E. ROY

Telephone: 991 465

The University of Patras Welcomes You

Article by the Rector Prof. George Maniatis

The University of Patras was established in November 1964 as a self-governing institution under the supervision of the Ministry of Education. The planning for the establishment of the University goes back to 1962 with a study assessing the possibility of creating a new University in the western part of Greece. Subsequently, in August 1964, an international conference was convened under the auspices of the Ministry of Coordination to discuss issues of developing such a new institution. The conference was attended by government representatives, rectors and professors from Europe and the United States and representatives of several international organizations. In August 1965, a second, week-long conference was held (this time under the auspices of OECD) on the same subject in which both Greek and foreign experts took part. As a result, specific studies were formulated regarding the formation and development of individual schools and services of the University. In conformity with them and with the approved schedule of a comprehensive development, the School of Science and the School of Engineering were first established. To these two schools, the school of Medicine was added in 1977. Thus today the University of Patras has three faculties as follows:

- A. Faculty of Science with 6 divisions (Mathematics, Physics, Chemistry, Biology, Geology and Pharmacy).
- B. Faculty of Engineering with five divisions (Electrical, Mechanical, Civil, Chemical and Computer Engineering) and
- C. Faculty of Medicine.

The University has today a teaching staff of 300 and over 6000 students of which 3800 are in the School of Science, 1800 in the School of Engineering and 500 in the School of Medicine.

The University campus, overlooking the Corinthian Gulf, occupies an area of over 500 acres and is located on the foothills of Panachaicon Mountain at Rion, 6 Km from the city of Patras.

In 1973 the architectural firm of Doxiades Associates prepared the Master Plan for the University of Patras. Subsequently, the same firm was commissioned to design the buildings for the three existing Schools. Many of these buildings are under construction now.

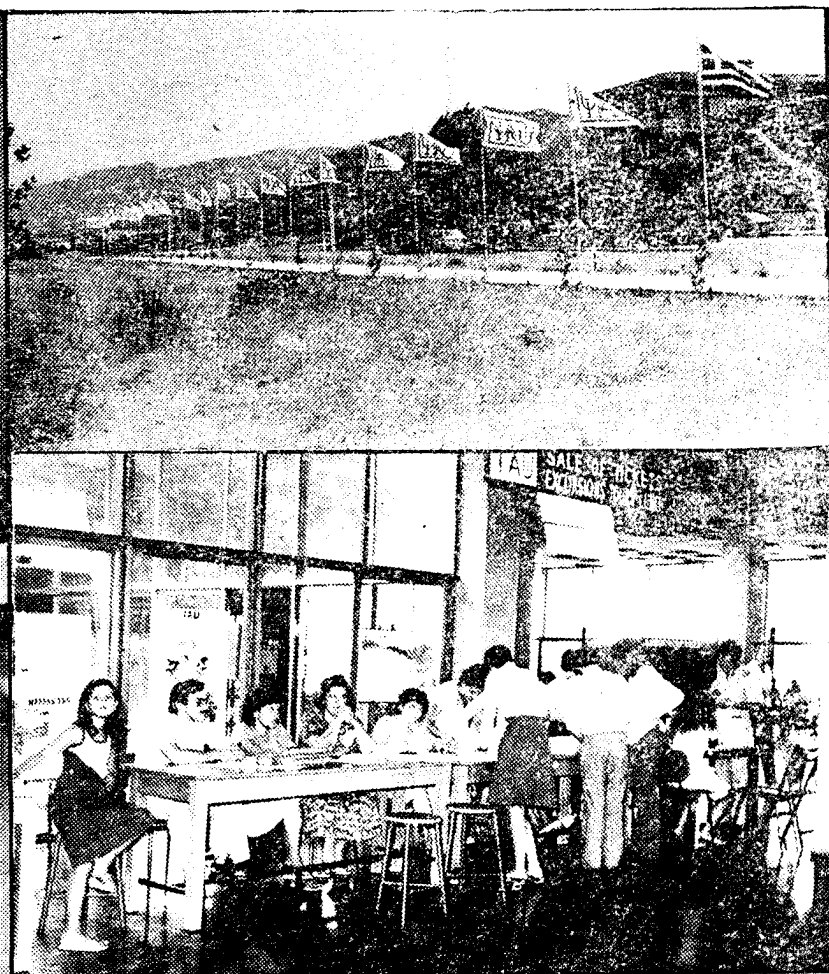
Despite its short life the University of Patras has been the center of several innovations in the greek university system and its faculty is well represented in the international scientific literature.

Now, the University is host to the participants of the XVIIIth General Assembly of the International Astronomical Union. Its one wish is that its guests enjoy their stay here and take away pleasant memories of Patras University, of Patras and of Greece

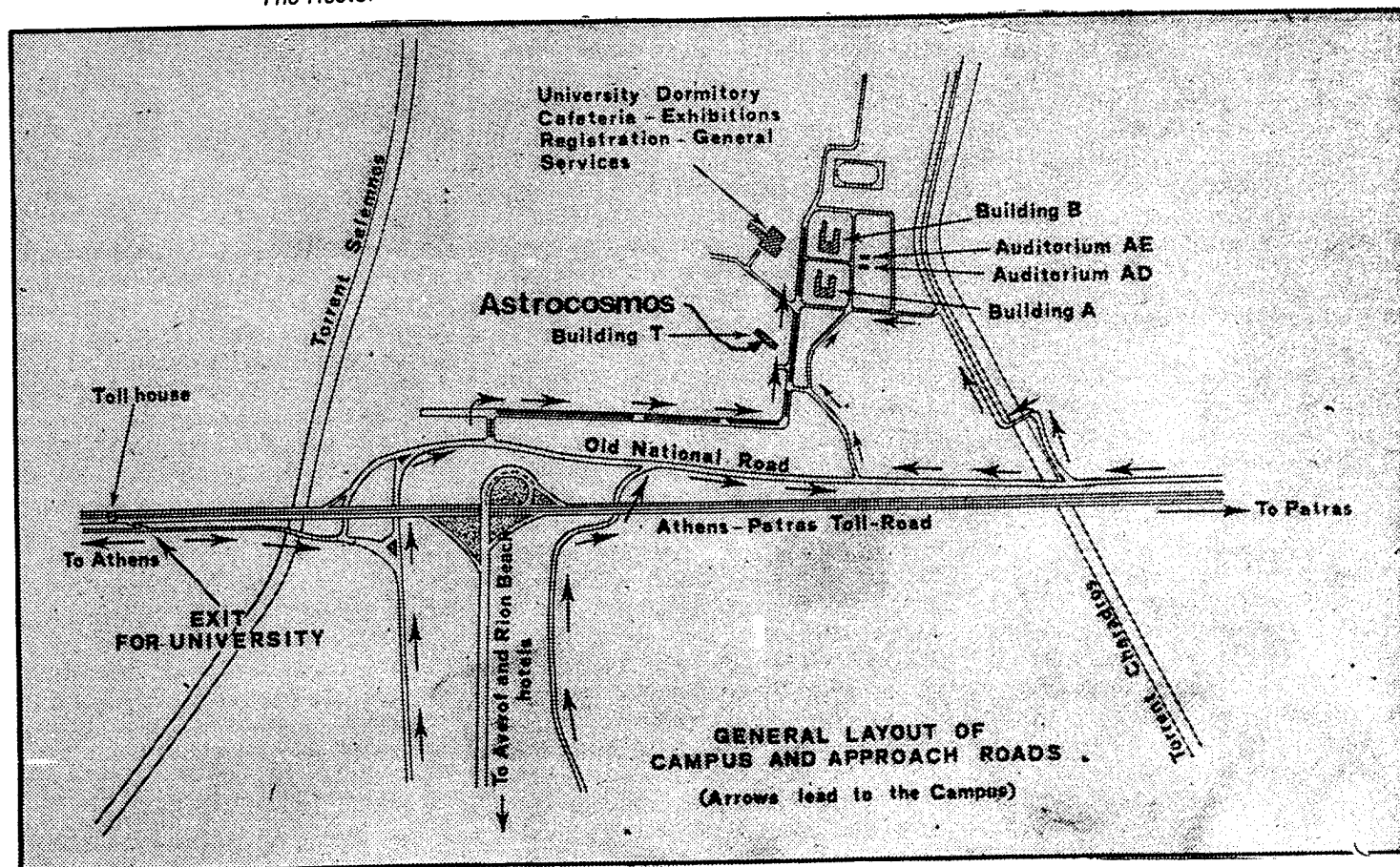
Welcome to you all!



The Rector



First customers arrive!



Editorial

Kalimera! Good morning and welcome to Greece, to Patras, to the International Astronomical Union and to your newspaper ASTROCOSMOS.

Why the name ASTROCOSMOS? For two reasons: one is that astronomers are concerned with the universe or cosmos and the other is that a meeting of the IAU is a cosmos in itself, the cosmos of astronomers. And that of course is why the symbol of the intertwined letters of the IAU - UAI appears with the name of the newspaper.

Why the symbol of St Andrew and his cross? Because it is the symbol of the University of Patras, host of the IAU. And perhaps a little bit because your editor is Scots and St Andrew is the patron saint of Scotland and St Andrew's cross appears on the national flag of Scotland.

Why the owl? Ah, that's because we are in Greece where one of the most famous goddesses is Pallas Athena, goddess of knowledge and whose symbol is an owl. And of course because astronomers are night birds.

Now, what will you find in your newspaper, which will be published every day you are here? Something of interest for everyone, we hope. There will be programmes of forthcoming events, reports and accounts of mee-

Publisher: For the Local Organizing Committee, V.V. Markellos
Editor: A.E. Roy
Both at the University of Patras

Phototypesetting and Printing: P. Constantinoopoulos, 115 Maizonos Str. - Patras

tings and excursions, articles not only on astronomical topics but also about your host country and her customs, her food, her wines and so on. There will be of course, advertisements. What newspaper could do without them, a necessity that has given rise to the definition of a journalist - a person who writes on the back of advertisements. There will also be puzzles and cartoons, prepared at enormous expense to test your skill, helpful articles such as How To Earn An International Reputation, Useful Scientific Phrases, etc. In the next issue of ASTROCOSMOS you will find a feature about your newspaper's staff. We assure you that they are all friendly people and eager to get to know you. If you have things to tell us, matters of general interest or simply feel the urge to write a letter then please do so. Better still, come and see us.

This is your editor's seventh visit to Greece. I can from experience assure those who have never been to Greece before that they are in for a truly memorable sojourn; those who have been before already know that. As members of the IAU we have come from all over the globe to this ancient land that has given so much to astronomy, mathematics, art and all those other creations of mind and spirit, and continues to do so. And so under a Greek sun by day and at night under the same constellations known to Hesiod and Homer, to Aristarchos of Samos and Hipparchus of Rhodes, we will work and play and get to know one another better.

And perhaps in some small way bring forward the day when, as Schiller put it, *Alle Menschen werden Brüder*.

Kalimera! Bonjour et bienvenue en Grèce, à Patras, à UAI et à votre journal ASTROCOSMOS

Pourquoi le nom d'ASTROCOSMOS? Pour deux raisons: d'abord parce que les astronomes s'occupent de l'univers ou cosmos et ensuite parce qu'un congrès de l'IAU est en lui-même un cosmos, le cosmos des astronomes. Et c'est naturellement pour cela que figure en tête du journal le double sigle entrelacé UAI - IAU.

Pourquoi le symbole de saint André et sa croix? Parce que c'est celui de l'Université de Patras, hôte de l'IAU. Peut-être aussi un peu parce que votre rédacteur-en-chef est Ecossais, que saint André est le patron de son drapeau écossais.

Pourquoi la chouette? C'est, bien entendu, parce que nous sommes en Grèce et que l'une de ses plus célèbres déesses, celle du savoir, est Pallas Athena dont l'emblème est la chouette. Et puis, bien sûr, parce que les astronomes sont des oiseaux de nuit. Qu'allez-vous trouver dans notre journal qui sera publié tous les jours de ce congrès? De quoi intéresser chacun d'entre vous, espérons-le, avec le programme des diverses activités prévues, le compte rendu des réunions, le récit des excursions, des articles non seulement sur les sujets astronomiques mais aussi sur le pays qui nous accueille, sur ses coutumes, sa nourriture, ses vins, etc. Il y aura naturellement des annonces publicitaires. Quel journal pourrait s'en passer? Cette nécessité a même engendré la définition du journaliste: quelqu'un qui écrit sur le dos de la publicité. Il y aura également des devinettes et

des bandes dessinées, préparées avec grand soin pour tester votre subtilité, des articles pratiques tels que «comment gagner une renommée internationale», «expressions et phrases astronomiques courantes et leur signification», etc.

Le prochain numéro d'ASTROCOSMOS vous renseignera sur le personnel de votre journal. Soyez sûrs que ce sont tous des gens charmants qui ne demandent qu'à faire votre connaissance.

Si vous avez des choses à nous dire, que ce soit d'intérêt général ou tout simplement parce que vous éprouver le besoin de nous exprimer une opinion plus personnelle, n'hésitez pas à le faire. Mieux encore, venez nous voir!

Votre rédacteur-en-chef en est à sa septième visite de la Grèce. A tous ceux qui foulent pour la première fois le sol de ce pays, je puis assurer que leur séjour sera mémorable. Les autres le savent déjà. En tant que membres de l'IAU, nous sommes venus des quatre coins du monde dans ce pays, berceau d'une civilisation antique qui a tant apporté, et continue de le faire, à l'astronomie, aux mathématiques, aux arts et à toutes les autres créations de l'esprit. Sous le soleil grec et sous les constellations que connurent Hésiode et Homère, Aristarque de Samos et Hipparque de Rhodes, nous allons donc travailler et nous détendre et apprendre à nous mieux connaître. Et, qui sait, peut-être modestement contribuer à l'avènement du jour, où, comme l'a dit Schiller, *Alle Menschen werden Brüder* (Tous les hommes seront frères).

THE INTERNATIONAL ASTRONOMICAL UNION

by Patrick A. Wayman

The International Astronomical Union has a subscribing membership of fifty Adhering Organisations, each accepted as representative of astronomers on a national basis. In 1981, there were some 4500 individual IAU members. It is expected that this category of membership will increase to over 5000 after the Patras General Assembly, by the proposals of the adhering bodies.

The scientific and documentary work of the IAU is principally the concern of its forty commissions, new Commissions being formed from time to time and others being dissolved. Presidents of IAU Commissions are appointed at each General Assembly. Each Commission deals with details of its subject that require international agreement; scientific meetings on particular topics are held, either at General Assemblies or during the intermediate years; Commissions are also concerned with questions such as documentation and the maintenance of agreed international standards.

Cooperative programmes of observation and of recording astronomical phenomena have an international history covering more than a century. Seldom do IAU Commissions actually guide the procedures adopted in cooperative programmes, but a forum exists where the problems and desiderata can be discussed and the results presented, a wide range of interested persons being able to take part.

The IAU has always paid attention to the participation of young astronomers. Part of its income is regularly devoted to assisting young astronomers. Funds are awarded to the IAU-Unesco Schools for Young Astronomers and to individuals enabling them to work in other countries or to attend General Assemblies and IAU Symposia, Colloquia and Regional Astronomy meetings. These meetings are the principal scientific activity of the Union and result in the publication of several volumes per year, the «IAU Symposia» series and other publications. Produced with the cooperation of a publisher, they mark the progress of astronomical science and are also from an international standpoint.

Each scientific meeting is held only after

readable compilations of recent research proposals have been approved by an IAU Commission President and scrutinized by the Executive Committee of the IAU. The IAU makes modest contributions to the costs of each meeting, quite small as compared with the total costs, but organizers agree readily to suggestions by the Executive Committee, ensuring that international balance is thereby properly served.

It is a customary for commissions of the Union to be regarded as autonomous and the role of the Executive Committee and the Secretariat is to coordinate the functions of the Commissions and to point the way towards achieving new goals. Astronomy, which was formerly regarded as a somewhat esoteric activity of a small coterie of scientists has come to be of wide popular interest and to be a background subject for many sciences. With proliferation of electronic, atomic and optical techniques, astronomy has developed in an extraordinary way in the past thirty years; the launching of space vehicles has resulted in astronomical research being carried out by a much wider circle of scientists. In the IAU, all Commissions find their basic flow of information transformed by modern techniques and, where other bodies exist with overlapping interests, a policy of cooperation by co-sponsorship of scientific meetings is actively pursued.

For the future countries where astronomical research is only starting will increasingly find that participation in IAU activities brings benefits. The network of personal acquaintance that exists within the IAU Commissions will enable knowledge of astronomical work and participation in generously provided facilities (optical observatories in remote sites, data-acquisition from satellites, computing networks, etc) to be spread where it did not previously exist. This work is encouraged in the belief that scientists can contribute markedly not only to a wider knowledge of human achievement but also to better international understanding. Increasingly, the IAU endeavours to strengthen its educational activities (Commission 46) and its out-ward-

looking functions; but it must maintain strong international scientific activity within its Commissions, such as scientific meetings of a high standard, consistent with adequate international participation, that represent the summits of current achievement.

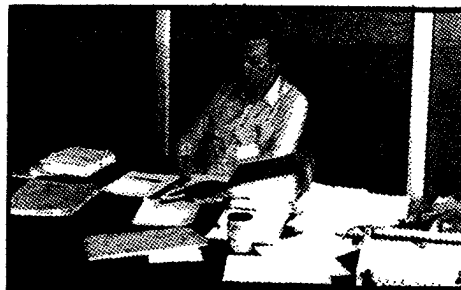
Traditionally, much work of the IAU was concerned with international agreement on how the standard ephemerides were to be produced, and how standards of time and earth-rotation were to be achieved internationally from astronomical data. These traditional activities continue to develop and they retain their importance, but it is noteworthy that the use of earth satellites and long baseline radio methods are now transforming the basic data.

The Union has, as its highest authority, its triennial General Assemblies, the first having

been held in Rome in 1922 and the seventeenth in Montreal in 1979. The eighteenth General Assembly is being held in Patras. The representatives of the adhering bodies have voting power at General Assemblies, receiving reports and resolutions from committees and working groups. In this way, the work and the policy of the Union are recorded in a series of volumes, the Transactions of the International Astronomical Union, one volume being published after each General Assembly.

Founded in 1919, the IAU in 1982 finds increasing work for it to do in encouraging cooperation between astronomers of different countries and of different specialities. The Patras General Assembly gives an opportunity for fresh impetus and new ideas in furthering these aims.

About Patrick A. Wayman



Patrick A. Wayman, General Secretary of IAU, 1979-1982, is Director of the Dunsink Observatory, Dublin Institute for Advanced Studies, Castleknock, Co. Dublin.

He was born in Bromley, UK, in 1927. His qualifications include a Cambridge University BA (1948), an MA (1952) and the PhD (1952). Subsequently, he has been fellow of the Royal Astronomical Society since 1949, Visiting Astronomer at the Case Institute (1950) and the Yerkes Observatory, University of Chicago (1951), astronomer at the Royal Greenwich Observatory, UK (1951-1964), member of the IAU since 1952, and Senior Professor in the Astronomy Section, DIAS, Dublin (1964-date). He is a Member of the Royal Irish Academy (1966; Vice-President 1978-1979), an Associate of the Royal Irish Astronomical Society (1982), and was Assistant General Secretary of IAU from 1976 to 1979.

After serving on secondment in South

Africa to the Royal Observatory, Cape Town (now the South African Astronomical Observatory) from 1957 to 1960, Patrick Wayman was appointed officer in charge of the Meridian Department of the Royal Greenwich Observatory in 1962. In 1964, he became Director of the Dunsink Observatory in the Republic of Ireland with responsibility for developing interests in a range of astronomical activities. He has worked on cepheid variable stars in the Magellanic Clouds and on problems related to the Hyades distance modulus determinations. He is currently interested in the establishment of Irish participation in the Spanish International Astrophysical Observatory in the Canary Islands through the UK Science and Engineering Research Council. He is Chairman of the Editorial Board of the Irish Astronomical Journal and was principal founder of the Astronomical Science Group of Ireland which is part of the Irish Astronomical Society and he was the first Chairman of the Irish National Committee for Astronomy as a representative of the Royal Irish Academy, the IAU adhering body for Ireland.

As General Secretary of the International Astronomical Union, he was responsible for the initial work of the Paris IAU Secretariat in 1979 and has prepared the work of the XVIIIth General Assembly held in Patras.

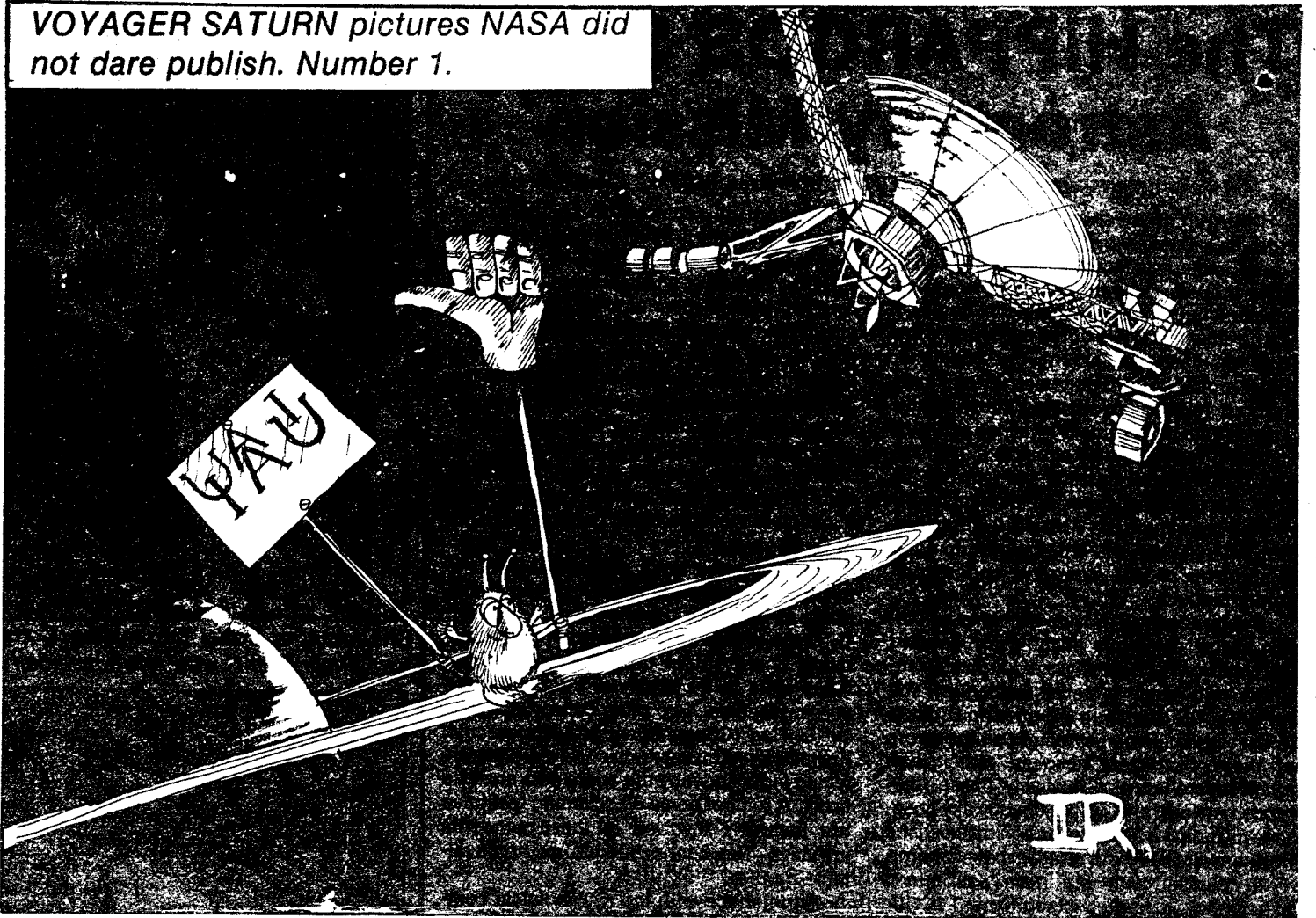
GASTRONOMY CORNER

VOYAGER SATURN pictures NASA did not dare publish. Number 1.



A visit to any country cannot be a success without sampling the food and beverages characteristic of that land. But even if we do so, and enjoy what is offered, all too often memory fails when we return home. We forget the details, the names, the ways in which the food and drinks are prepared.

And so we have prepared for you some typical recipes, adding where we thought it appropriate to do so, short accounts of the background. In the days that follow we will therefore put before you, as the Greeks so love to do in reality, dish after dish accompanied by justly famous Greek wines. Look upon them as a meal prepared with customary Greek care for our international guests.



IR

SOUVLAKI

One kilo of meat (lamb, veal or pork) preferably from the leg.

Bone the meat, cut it into small pieces, thread them on wooden or reed skewers (seven pieces in each, the one in the middle being fat). Cook under a moderately hot grill, turning them frequently so that they cook evenly. Sprinkle slightly with salt and pepper.

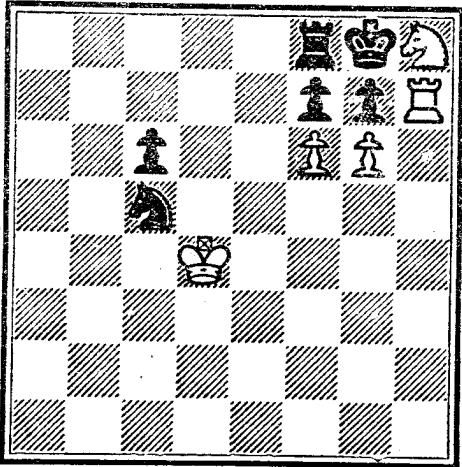
In order to give the meat a particular taste, press the juice of 2 or 3 lemons into a dinner plate, add a little salt and oregano and beat well with a fork for two minutes.

As soon as the meat is well cooked and juicy but not to the point of being dry, moisten the skewers with the lemon mixture, turning them on every side, and put them again under the grill for a further minute or two.

You will thus have a delicious appetizer.

WANDA GOUDAS

Chess Position 1



White to play and win

V V M.

HEALTH - INSURANCE - SECURITY

(Tel: 992.342)

Participants and guests, or other persons on their behalf, seeking medical assistance urgently should call day or night the following telephone numbers:

Telephone	Name	Specialization	Language
276 400	Dr S Stavropoulos	Cardiologist-Pathologist	English
278 957	Dr C Christopoulos	Cardiologist-Pathologist	French
222 744	Dr C Klounikas	Cardiologist-Pathologist	French
277 833	Red Cross		English-French
992 342	Mrs Helen Ghekas		German

Mrs Ghekas, member of the Secretariat, will assist participants to find the appropriate health service in case of extreme urgency.

During the scientific sessions there will be outside the University Dormitory Concourse a Red Cross ambulance that will provide First Aid service on the spot or take patients, in case of need to the University Hospital which is located about 10 km from the University.

Participants who requested or will buy upon registration insurance coverage, under the terms specified in the Preliminary Programme, should contact, in case of need, Dr Paul Hatjiconstantinou (tel 991 920, building A, first floor, Office of LOC). To Dr Hatjiconstantinou participants should also address their questions concerning security.

ANNOUNCEMENT

A local Greek family Dr and Mrs Calliolas and their children, offer hospitality to the son (aged 9-13 years) of an English-speaking family attending the General Assembly. They offer to collect the boy each morning and return him to his parents each evening or he may, if he wishes, stay the night. Anyone interested should phone 991-889. (The family have the LOC's recommendation).

Lynnos

Hand made items of popular art. Silver - copper - bronze - woodcraft items, woven goods. Chandeliers and table lamps - clay, pottery, brick items.

Exquisite gifts

37, Aratou str. tel.: 276.633.

Bali Hairdressing Salon

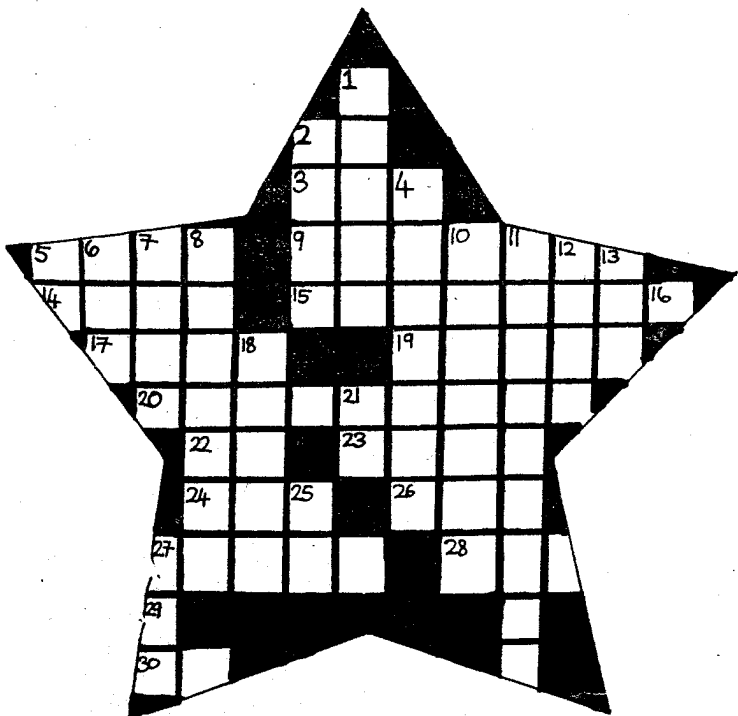
«La coupe bali», haute coiffure.

200, Corinthou str. (1st floor).

ASTROCROSSWORD

In the unlikely event that you find a spare moment amid all the IAU activities, why not pit your wits against

the author of the ASTROCOSMOS crossword, specially designed for participants.



ACROSS

- 1 Third in the spectral classification
- 2 Much more common than the alternative
- 3 Reverse instructions
- 5 Gastronomers and astronomers delight in it
- 9 J S Bath excelled in it
- 14 Mexican wolf
- 15 It began it all
- 17 Wind instrument
- 19 Positive pole
- 20 The reason for it all
- 22 Addition of an E definitely finished the article
- 23 Belonging to a celestial wolf
- 24 Trading partners
- 26 Add 'K' to give a baby a good start
- 27 We all make them
- 28 When tired, do it
- 29 See 1A
- 30 With reference to

DOWN

- 1 Thespian
- 2 Sounds like the initials of a brand-new system for transporting people
- 4 Half of the lunar stormy one.
- 5 One more than 149
- 6 Add 1000 to provide accommodation
- 7 Internationally acclaimed group of stars
- 8 Without it Shuttle wouldn't make it
- 10 It just fails to beat Sirius
- 11 Number of atoms in the molecule.
- 12 Admirable habit not many have
- 13 An 'N' and a 'D' will transform it to 19A
- 16 'Now' reminds us of it in the mnemonic (see 1A)
- 18 An anaesthetic or a discarded concept
- 21 If I enter it, it becomes valuable
- 25 Commanding officer
- 27 The organ of hearing

The HIPPARCOS Space Astrometry Mission

M.A.C. Perryman Astronomy Division, ESTEC, Noordwijk, 2200 AG The Netherlands

HIPPARCOS is a space mission currently under development by the European Space Agency and due for launch in 1986, dedicated to the accurate determination of astrometric data for a large number of celestial bodies.

The scientific goals of the mission are the accurate measurements of the positions, proper motions and trigonometric parallaxes of about 100 000 pre-selected stars, mostly brighter than magnitude $B = 10$ mag and with a limiting magnitude of about $B = 13$ mag. After the nominal satellite life-time of 2.5 years, the accuracy expected for stars brighter than magnitude $B = 9$ mag is 0.002 arcsec in the parallaxes and 0.002 arcsec in each component of the positions and annual proper motions.

The mission will provide a uniform whole-sky stellar catalogue suitable for detailed astrometric and astrophysical studies. Compared with existing stellar catalogues, the HIPPARCOS catalogue will offer (in addition to the significant improvement on the errors of these quantities) absolute rather than relative parallaxes, a relatively dense reference network, and homogeneous sky coverage including a firm connection between the northern and southern celestial hemispheres.

In parallel with the main astrometric experiment, a further experiment, TYCHO, will result in an astrometric and photometric survey of all stars down to a limiting magnitude of $B = 10-11$ mag (some 400 000 or more stars). Positions for these stars will be derived with an accuracy of some 0.05 arcsec and these will be tied directly into the HIPPARCOS reference grid providing a dense stellar network of some 10 or more stars per square degree. Two-colour photometry will be performed for each star at some 50 epochs throughout the 2.5 year mission lifetime.

Detailed discussions of the scientific objectives and of the experimental design have been presented in the Proceedings of the Colloquium on the Scientific Aspects of the HIPPARCOS Space Astrometry Mission (ESA SP-177, 1982). The essential principles of the present experimental design were originally

put forward by Professor P. Lacroûte in a proposal to CNES in 1967; the angles between stars widely separated on the sky are measured by means of a telescope in which two fields of view are superimposed by a complex mirror. The stellar images are modulated by a grid at the focal surface, and angles are determined from the relative phases of the resulting modulated signals. Angular measurements are made at many different orientations and epochs as a result of the continuous scanning of the celestial sphere. On ground data-processing leads eventually to the determination of the astrometric parameters of the programme stars.

The scientific tasks associated with the mission are being undertaken by three consortia of scientific institutes. One, led by Dr. C. Turon (Meudon) is involved in the preparation of the «Input Catalogue» containing those stars to be observed throughout the mission lifetime. Two other consortia, led by Dr. E. Høg (Copenhagen) and Professor J. Kovalevsky (Grasse) respectively, are undertaking independently the entire data analysis tasks. A total of some 50 scientific institutes are presently involved in these consortia activities. The final catalogue may be available by 1991.

An interface with the astronomical community is provided by the «Invitation for Proposals Contributing to the Observing List». This document presents the necessary information for those individuals who wish to submit objects for inclusion in the observing programme, and has a closing date of 1 October 1982. Copies of the Invitation for Proposals are available from the author at the following address: Dr. M.A.C. Perryman, Astronomy Division, ESTEC, Noordwijk, 2200 AG The Netherlands.

FIRST SESSION OF 1982 GENERAL ASSEMBLY ON TEACHING OF ASTRONOMY

A session of IAU Commission 46 on Teaching of Astronomy was held Monday morning under the Chairmanship of Prof. G. Antonakopoulos of the University of Patras. It was the first official meeting of the General Assembly and was dedicated to the teaching of Astronomy at the high school level. It was attended by representatives from USA, India, Portugal, Taiwan, Greece and several other countries.

SCANDIA RESTAURANT

Agiou Andreou 6.

In our menu you will find the succulent specialities of the Greek cuisine. The original moussaka and the ever popular Greek souvlaki served with rice. Both are gourmet's delight. Your choice of wide variety of our tasty pizzas and sea food is also available. Open to serve you from 17.00 to 02.00.

Our catering service is also operating the Wine Festival of the International Astronomical Union.

Wine Festival

The Local Organising Committee of the 18th General Assembly of the University of Patras has organised a wine festival to entertain our honoured guests. It will be open every evening from the 10th until the 26th of August 1982 between 20.00 and 24.00.

The entrance charge for registered participants is \$2 and for the non-registered \$4. Special wine glasses and wine carafes will be on sale inside the festival area.

Greek specialities (*souvlaki*) and soft drinks will also be available at a cantina at reasonable prices. Participants will also be able free of charge to drink wine from different parts of Greece.

An Orchestra «The Planets» will provide music for the occasion. There will also be contributions from local choirs.

Buses and coaches will be available to take participants from their hotels to the Wine Festival and back to their hotels. The last bus will leave the Festival at 00.10.

Greek traditions greet the IAU



Chairman of Local Organizing Committee Constantine Goudas and Victor Szebehely (right) with Astrocosmos reporters.



General Secretary Patrick Wayman (right) greets Vice-President Robert Wilson.

Dionysus rules! The IAU's opening informal session combined the delights of a Greek Wine Festival with a riot of local colour, music and dancing, as participants were regaled at the EOT Swimming Resort on Monday night.

The god Dionysus brought the art — and science? — of winemaking to Greece tens of centuries ago, and the delegates enjoyed the results straight from the taps of the great wooden barrels under open tents by the shores of the Gulf of Corinth. And IAU members and guests will be able to take memories of the warm, dusky evening home with them, in the form of specially produced IAU glasses and carafes. Other souvenirs for sale appeared in the stalls of local craftspeople: ceramic ware, intricate woodcarvings and tapestry mats and bags in bright colours.

The evening's entertainment reached its climax as the dancers of the Lyceum Club of Greek Women appeared on an open space fringed by hibiscus trees. In the Patras dress — a local variant of traditional Greek costume — they solemnly, then more wildly, swayed to the uninhibited sounds of the local musicians. The girls in headscarves of black, red and green — with aprons of contrasting colours over their white skirts and jewelled bodices flashing under the lights — danced by themselves, or with male dancers in black waistcoats and knee-britches which contrasted starkly with their white shirts and leggings.

In the heady, colourful atmosphere, old friends met and embraced, while «names» only known on papers made contact with international counterparts they scarcely knew — but should grow to know well, by the time the General Assembly is over!

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